

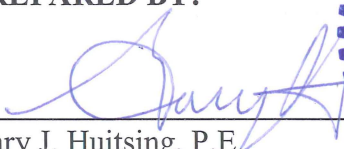
DEPARTMENT OF
ECOLOGY
State of Washington

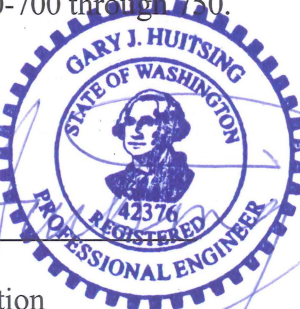
PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT

Issued To:	Tesoro Refining & Marketing Company LLC Anacortes Refinery
Facility Location:	10200 March Point Road Anacortes, Washington 98221
Permit Number:	Final PSD 17-01
Date of Permit Issuance:	July 18, 2017
Effective Date of Permit:	July 18, 2017

This PSD permit is issued under the authority of the Washington State Clean Air Act, Chapter 70.94 Revised Code of Washington; the Washington State Department of Ecology regulations for the Prevention of Significant Deterioration of Air Quality as set forth in Washington Administrative Code 173-400-700 through 750.

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7/18/17
Date

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PROJECT SUMMARY

Tesoro Refining & Marketing Company LLC operates a refinery in Anacortes, Washington, referred to as the Anacortes Refinery. The Tesoro Anacortes Refinery (Tesoro or Refinery) produces petroleum-based products.

This Prevention of Significant Deterioration (PSD) project referred to as the Clean Products Upgrade Project (CPUP or project), will make the following changes to the refinery:

- Build an Aromatics Recovery Unit (ARU) capable of producing 15,000 barrels per day of mixed xylenes, a feedstock used to make clothing, film for medical x-rays, plastics, cleaners, and many other products we use every day.
- Install a new Marine Vapor Emission Control (MVEC) system that will reduce emissions of volatile organic compounds (VOCs). The MVEC System will control hydrocarbon emissions from marine vessels during loading operations.
- Expand the Naphtha Hydrotreater (NHT) to process 46,000 barrels of naphtha per day. This will allow Tesoro to further reduce the sulfur content in gasoline as required by the new federal Tier 3 regulations.
- Install a new Isomerization (Isom) unit to increase the amount of octane available to the refinery. Coupled with the NHT expansion project, this provides more flexibility for production of gasoline.

Construction on this project is expected to begin sometime in 2017, and the new units are expected to start operating sometime in 2018.

A PSD analysis for this project determined that it will have physical or operational changes that qualify as a major modification. Estimated project emissions are above the PSD significant emission rate (SER) thresholds both before and after considering significant net emission increases and/or decreases associated with this project for each of the following pollutants: particulate matter (PM) less than 10 microns (PM₁₀), PM less than 2.5 microns (PM_{2.5}), and greenhouse gases (CO₂e).

A full technical review of the project for these pollutants, including a Best Available Control Technology (BACT) analysis, and the project's effect on national ambient air quality standards (NAAQS), PSD increments, visibility, soils, and vegetation, is required and included in a Technical Support Document (TSD) prepared by the Washington State Department of Ecology (Ecology) on March 21, 2017.

The emissions of other air pollutants not subjected to PSD review are covered in the Northwest Clean Air Agency's (NWCAA) Notice of Construction (NOC) approval for this project.

APPROVAL CONDITIONS

Based on the PSD permit application submitted by Tesoro on April 12, 2016, along with supplemental information submitted in May 17, 2016, and the technical review performed by Ecology, Ecology finds that all requirements for issuance of this PSD permit have been satisfied. Ecology determined the application complete in May 17, 2016. Tesoro provided a consolidated application in June 2016. Approval of the project is granted subject to the following conditions:

I. EFFECTIVE DATE OF PERMIT

In accordance with 40 CFR §124.15 and §124.19, and the Washington Administrative Code (WAC) 173-400-730(2)(c), the effective date of this PSD permit is one of the following dates:

- A. The date of issuance of this permit, or
- B. A later date if specified on the signature page of this permit.

II. PERMIT EXPIRATION

Pursuant to 40 CFR §52.21(r)(2) and WAC 173-400-730(5), and unless an extension is granted by Ecology prior to expiration, Tesoro's authorization to construct under this PSD permit expires as follows:

- A. This permit expires, and re-permitting will be required before any further construction activity may occur, if:
 - 1. Construction has not commenced (as defined in 40 CFR §52.21 (b)(9)) within eighteen (18) months of the effective date of this permit; or
 - 2. Construction is discontinued for a period of eighteen (18) months or more; or
 - 3. Construction is not completed within a reasonable time.

III. PERMIT NOTIFICATION REQUIREMENTS

- A. Tesoro's requirements in this PSD permit to notify, report to, or acquire approval or agreement from "Ecology and/or the NWCAA" may be satisfied by providing such notification, reporting, or approval request to NWCAA if the conditions of this PSD permit have been incorporated into Tesoro's Title V Air Operating Permit issued pursuant to 40 CFR Part 70 and Chapter 173-401 WAC.

- B. Tesoro must notify Ecology and NWCAA in writing or electronic mail of the date construction of the project is commenced, postmarked, or received no later than thirty (30) days after such date.
- C. By December 31 of each year, Tesoro must submit to Ecology, in writing or electronic mail, an annual report containing a brief summary of the construction activities related to the project that occurred during the previous calendar year. This reporting obligation shall end when Tesoro submits a notification to Ecology, in writing or electronic mail, that all construction activities related to the project have been completed. This notification of completion shall contain a brief summary of any construction activities related to the project that has not been included in a prior annual report.

IV. EQUIPMENT RESTRICTIONS

This PSD permit authorizes the construction of the following new and modified equipment as listed in Table IV-1 and includes authorization for their related CPUP equipment and subcomponent parts. However, Tesoro may choose not to construct all of the listed equipment.

Table IV-1. New and Modified Equipment Associated with the CPUP	
Equipment Description	New and/or Modified
Natural Gas-fired Steam boiler (F-6870)	New
Reformat Feedstock Tank 285	New
Mixed Xylenes Product Tank 286	New
Mixed Xylenes Product Tank 287	New
MVEC System	New
Fugitive Equipment at Isom Unit	New
Fugitive Equipment at ARU	New
Fugitive Equipment at ARU Tankage	New
Fugitive Equipment at CR/NHT	Modified
Fugitive Equipment at MVEC	New

V. EMISSION LIMITS

The following emission limits apply to this project. These limits include consideration of best available control technology (BACT) determinations described in Section VI.

A. PM₁₀ (filterable and condensable combined)

1. PM₁₀ (including filterable and condensable combined particulate) from boiler F-6870 must not exceed the following limits:
 - a. Mass emission rate limit of 4.38 lb/hr on an hourly average (includes startup/shutdown emissions).
2. PM₁₀ (including filterable and condensable combined particulate) from the MVEC system must not exceed the following limits:
 - a. Mass emission rate limit of 0.89 lb/hr on an hourly average (includes startup/shutdown emissions).

B. PM_{2.5} (filterable and condensable combined)

1. PM_{2.5} (including filterable and condensable combined particulate) from boiler F-6870 must not exceed the following limits:
 - a. Mass emission rate limit of 4.38 lb/hr on an hourly average (includes startup/shutdown emissions).
2. PM_{2.5} (including filterable and condensable combined particulate) from the MVEC system must not exceed the following limits:
 - a. Mass emission rate limit of 0.89 lb/hr on an hourly average (includes startup/shutdown emissions).

C. CO_{2e}

1. CO_{2e} from boiler F-6870 must not exceed the following limits:
 - a. Heat input rate limit of 117 lb CO_{2e}/MMBtu.
 - b. Mass emission limit of 299,524 tpy on a 12-month rolling average.
2. CO_{2e} from the MVEC system must not exceed the following limits:
 - a. 29,439 tpy on a 12-month rolling average.

VI. BACT DETERMINATIONS

Consistent with 40 CFR §52.21(j)(3), which requires that BACT be applied to each PSD pollutant with significant net emissions increases, the BACT determinations of this section apply to this project. Facility emission units not listed in this section do not require a BACT analysis because they are not physically or operationally modified as a result of this project.

A. BACT for Boiler Unit F-6870

Table VI-1. BACT Determinations for Boiler Unit F-6870	
Pollutant	BACT Determination Description
PM ₁₀ (filterable and condensable)	Good Combustion Practices and use of clean fuels (use of natural gas). These BACT determinations shall be demonstrated by compliance with the PM ₁₀ BACT limit of Section V.
PM _{2.5} (filterable and condensable)	Good Combustion Practices and use of clean fuels (use of natural gas). These BACT determinations shall be demonstrated by compliance with the PM _{2.5} BACT limit of Section V.
CO _{2e}	Utilizing low emitting processes and use of clean fuels (use of natural gas). These BACT determinations shall be demonstrated by compliance with the CO _{2e} BACT limit of Section V.

B. BACT for MVEC System

Table VI-2. BACT Determinations for the MVEC System	
Pollutant	BACT Determination Description
PM ₁₀ (filterable and condensable)	Good Combustion Practices and use of clean fuels (use of natural gas). These BACT determinations shall be demonstrated by compliance with the PM ₁₀ BACT limit of Section V.
PM _{2.5} (filterable and condensable)	Good Combustion Practices and use of clean fuels (use of natural gas). These BACT determinations shall be demonstrated by compliance with the PM _{2.5} BACT limit of Section V.
CO _{2e}	Utilizing low emitting processes and use of clean fuels (use of natural gas). These BACT determinations shall be demonstrated by compliance with the CO _{2e} BACT limit of Section V.

C. BACT for Fugitive Components

Table VI-3. BACT Determinations for Fugitive Components (includes fugitive components in both VOC and natural gas service)	
Pollutant	BACT Determination Description
CO _{2e}	For the ARU Unit and ARU Tankage: Implementation of Leak Detection and Repair (LDAR) program consistent with 40 CFR 60 Subpart VVa and 40 CFR 63 Subpart H (including recordkeeping requirements contained within each regulation).
	For the CR/NHT, Isom unit, and MVEC: Implementation of Leak Detection and Repair (LDAR) program consistent with 40 CFR 60 Subpart GGa and 40 CFR 63 Subpart CC (including recordkeeping requirements contained within each regulation).

VII. SPECIFIC OPERATING REQUIREMENTS

The following requirements are listed as statements of fact because they are relevant to this permit. Ecology is not making them enforceable as part of this permit because they are already enforceable independent of this permit.

- A. Project units must comply with all applicable requirements of New Source Performance Standards (NSPS), 40 CFR Part 60.1-60.19 (Subpart A).
- B. The new boiler (Unit F-6870) must comply with all applicable NSPS requirements of 40 CFR Part 60.40b-49b (Subpart Db).
- C. The medium reformat feedstock storage tank (TK-285) and the new mixed xylenes product storage tanks (TK-286 and TK-287) must comply with all applicable NSPS requirements of 40 CFR Part 60.110b-60.117b (Subpart Kb).
- D. The ARU must comply with all applicable NSPS requirements of 40 CFR Part 60.480a-489a (Subpart VVa).
- E. The components in new Isom unit, the existing CR/NHT process unit, and the new MVEC must comply with all applicable NSPS requirements of 40 CFR Part 60.590a-593a (Subpart GGa).
- F. ARU vent streams must comply with all applicable NSPS requirements of 40 CFR Part 660-668 (Subpart NNN).
- G. The ARU individual drain system (IDS), new Isom unit drains, and also new drains at the NHT and/or MVEC (if constructed) must comply with all applicable NSPS requirements of 40 CFR Part 690-699 (Subparts QQQ).
- H. Project units must comply with all applicable requirements of National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63 (Subpart A).

- I. Project equipment waste streams and related control systems must comply with all applicable NESHAP requirements of 40 CFR Part 63 (Subpart FF).
- J. ARU heat exchangers and maintenance wastewater must comply with all applicable NESHAP requirements of 40 CFR Part 61 (Subpart F).
- K. ARU process wastewater and vents streams, the medium reformat feedstock storage tank (TK-285), and the new mixed xylenes product storage tanks (TK-286 and TK-287) must comply with all applicable NESHAP requirements of 40 CFR Part 63 (Subpart G).
- L. The ARU must comply with all applicable NESHAP requirements of 40 CFR Part 63 (Subpart H).
- M. New equipment in organic HAP service, heat exchange systems, and wastewater streams at the CR/NHT, Isom, and MVEC must comply with all applicable NESHAP requirements of 40 CFR Part 63 (Subpart CC).
- N. The new boiler (Unit F-6870) must comply with all applicable NESHAP requirements of 40 CFR Part 63 (Subpart DDDDD).

VIII. COMPLIANCE MONITORING REQUIREMENTS

- A. Tesoro must monitor compliance for particulate matter in Conditions V.A.1 and V.B.1 for the boiler as stated in subsections 1 and 2 below:
 - 1. Tesoro must conduct source testing using EPA Method 5 or 201A (for filterable particulate matter) and Method 202 (for condensable particulate), or other method pre-approved by the NWCAA, in coordination with NWCAA. Tesoro must conduct an initial stack test no more than 180 days after startup. Thereafter, conduct testing at least once every 20 quarters. Prior to initial testing of the boiler, the operational rate must be preapproved by NWCAA.
 - 2. Tesoro must use emissions factors, determined from source testing to demonstrate compliance with limits, calculated on an hourly-average basis.
- B. Tesoro must monitor compliance for particulate matter in Conditions V.A.2 and V.B.2. for the MVEC system as stated in subsections 1 and 2:
 - 1. Tesoro must conduct source testing using EPA Method 5 or 201A (for filterable particulate matter) and Method 202 (for condensable particulate), or other method pre-approved by the NWCAA, in coordination with NWCAA. Tesoro must conduct an initial stack test no more than 180 days after startup. Thereafter, conduct testing at least once every 20 quarters. Tesoro may

propose and use an alternate compliance requirement if approved in advance by NWCAA.

2. This Condition applies only if source testing is used to demonstrate compliance: Tesoro must use emissions factors, determined from source testing to demonstrate compliance with limits, calculated on an hourly-average basis.
- C. Tesoro must monitor compliance for CO₂e in Conditions V.C with fuel tracking and 40 CFR Part 98 (Subpart C).
- D. Tesoro must follow the recordkeeping requirements in WAC 173-400-720(4)(b)(iii)(D) to monitor compliance in circumstances where there is a reasonable possibility (as defined in WAC 173-400-720(4)(b)(iii)(D)) that a project that is not a part of a major modification may result in a significant emissions increase of such pollutant.

IX. RECORDKEEPING AND REPORTING REQUIREMENTS

- A. Beginning the first calendar month of operation of the CPUP, Tesoro must keep the following records at the site (or electronically accessible at the site):
 1. The calculations and results pursuant to Condition VIII (A through D).
 2. The records from Condition IX.A.1 of this permit must be calculated for the immediate past twelve (12) months. For the purpose of this record, the immediate past twelve (12) months shall not include any month prior to the month that the CPUP began operation.
- B. Records must be retained for not less than five (5) years after their origination.
 1. At a minimum, the most recent two (2) years of data must be retained onsite (or be electronically accessible at the site). The remaining three (3) years of data may be retained offsite.
 2. Records must be available for inspection by Ecology and NWCAA within ten (10) days of request.
- C. Beginning the first calendar year after completion of the project, Tesoro must annually report in writing or electronic mail, postmarked or received before January 31 for the previous calendar year, the following information to NWCAA.
 1. The maximum value for the calendar year calculated pursuant to Condition VIII.A.2 and VIII.B.2.

- D. Tesoro must keep records and submit reports with regard to Condition VIII.D as specified in WAC 173-400-720(4)(b)(iii)(D).
- E. Tesoro must furnish Ecology and/or NWCAA, as specified in Condition III.A., a written report of the results of performance tests no later than 60 days after completion of the tests.

X. GENERAL RESTRICTIONS ON FACILITY OPERATIONS

- A. At all times, Tesoro must, to the extent practicable, maintain and operate the equipment listed in Table IV-1 of this permit, including any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.
- B. Determination of whether acceptable operating and maintenance procedures are being used for the equipment listed in Table IV-1 of this permit will be based on information available to Ecology, NWCAA, EPA and/or their authorized representatives, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

XI. MALFUNCTION AND EXCESS EMISSIONS REPORTING

- A. Prior to incorporation of the conditions of this PSD permit into Tesoro's Title V Air Operating Permit issued pursuant to 40 CFR Part 70 and Chapter 173-401 (WAC), Tesoro must report to Ecology and NWCAA, in writing or electronic mail, following the discovery of any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the allowable emission limits of this permit, in accordance with WAC 173-400-107 and the following conditions:
 - 1. Tesoro must notify Ecology and NWCAA, in writing or electronic mail, postmarked or received no later than thirty (30) days after the end of the month in which a malfunction is discovered, for any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the allowable emission limits of this permit. This notification must include a description of the malfunctioning equipment, process equipment or process, the date and time of the initial malfunction (if known), the period of time over which emissions were increased due to the malfunction, the cause of the malfunction (if known), the estimated resultant excess emissions, and the methods utilized to mitigate emissions and restore normal operations.

2. For purposes of this permit, “malfunction” means any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner.
- B. After the conditions of this PSD permit have been incorporated into Tesoro’s Title V Air Operating Permit issued pursuant to 40 CFR Part 70 and Chapter 173-401 (WAC), Tesoro shall report to NWCAA the discovery of any malfunction of air pollution control equipment, process equipment, or of a process, which results in an increase in emissions above the allowable emission limits specified in this permit, pursuant to the deviation reporting requirements and, if applicable, pursuant to the unavoidable excess emissions reporting requirements of that Title V Air Operating Permit.
 - C. Compliance with the malfunction notification requirements, as applicable, will not excuse or otherwise constitute a defense to any violation of this PSD permit or any law or regulation such malfunction may cause.

XII. RIGHT OF ENTRY

Section 114 of the federal Clean Air Act, 42 U.S.C. §7414, and the Revised Code of Washington (RCW) 70.94.200, and WAC 173-400-105(3) provide authorized representatives of EPA, Ecology, and NWCAA certain rights to enter and inspect the source. Refusal by Tesoro to allow such entry and inspection may be a violation of the federal Clean Air Act and/or the RCW subject to penalty as provided in those statutes. Pursuant to these statutes, authorized representatives of EPA, Ecology, and NWCAA, upon the presentation of credentials:

- A. Have a right of entry to, upon, or through any premises of Tesoro or any premises in which any records this permit requires Tesoro to maintain are located.
- B. Have the right, at reasonable times, to access and copy any records this permit requires Tesoro to maintain.
- C. Have the right, at reasonable times, to inspect any monitoring equipment or method required by this permit.
- D. Have the right, at reasonable times, to sample any emissions that Tesoro is required to sample under this permit.

XIII. TRANSFER OF OWNERSHIP

- A. In the event of any changes in control or ownership of facilities to be constructed, this PSD permit will be binding on all subsequent owners and operators. The applicant must notify the succeeding owner and operator of the existence of this

PSD permit and its conditions by letter, a copy of which must be forwarded to Ecology and/or NWCAA as specified in Condition III.A.

- B. If the conditions of this PSD permit have been incorporated into Tesoro's Title V Air Operating Permit issued pursuant to 40 CFR Part 70 and Chapter 173-401 (WAC), then the provisions for amending that Title V Air Operating Permit to allow for a change in ownership or operational control shall apply in place of the notification provisions in Condition XIII.A.

XIV. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS

- A. Pursuant to 40 CFR §52.21(r)(1), Tesoro must install and operate the proposed emissions units in accordance with this PSD permit and the application on which this permit is based.
- B. Pursuant to 40 CFR §52.21(r)(3), this PSD permit shall not relieve Tesoro of the responsibility to comply fully with applicable provisions of the State Implementation Plan and any other requirements under local, state, or federal law.
- C. Any applicant who fails to submit any relevant facts or who has submitted materially incorrect relevant information in a permit application must, upon becoming aware of such failure, or incorrect submittal, promptly submit such supplementary facts or corrected information.
- D. To the extent provided by 40 CFR §52.12(c), for the purpose of establishing whether or not Tesoro has violated or is in violation of any requirement of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether Tesoro would have been in compliance with applicable requirements if the appropriate performance or reference test or procedure had been performed.

XV. APPEAL PROCEDURES

This PSD permit, or any conditions contained in it, may be appealed to:

- A. The Pollution Control Hearings Board (PCHB) as provided in Chapter 43.21B RCW and Chapter 371-08 WAC.

ACRONYMS AND ABBREVIATIONS

BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂ e	carbon dioxide equivalents
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
Gal	gallon(s)
GHG	greenhouse gases
H ₂ SO ₄	sulfuric acid mist
lb	pound(s)
lb/hr	pound(s) per hour
MMBtu/hr	million British thermal units per hour
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NWCAA	Northwest Clean Air Agency
O ₂	oxygen
PCHB	Pollution Control Hearings Board
PM	particulate matter
PM ₁₀	particulate matter less than 10 micrometers in diameter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
ppm	parts per million
ppmv	parts per million by volume
ppmvd	parts per million by volume on a dry basis
PSD	Prevention of Significant Deterioration of Air Quality
RCW	Revised Code of Washington
tpy	tons per year
VOC	volatile organic compounds
WAC	Washington Administrative Code